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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,419	12/08/2003	Scott K. Parrish	AQM.01	9778

25871 7590 04/19/2007
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EXAMINER	
PAK, JOHN D	
ART UNIT	PAPER NUMBER
1616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/728,419	PARRISH, SCOTT K.	
	Examiner	Art Unit	
	JOHN PAK	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims 1-9 are pending in this application.

In the response of 1/16/2007, applicant has amended the claims so that citric acid and acetic acid are no longer recited or readable in part (b) of the independent claims 1 and 2. The following new grounds of rejection are necessitated by applicant's amendment.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by HCAPLUS abstract 2000:843249.

HCAPLUS abstract 2000:843249 discloses a plant growth stimulating insecticide composition that contains 1-50% ethephon, 0.5-10% imidacloprid, 10-40% sulfuric or hydrochloric acid, and dispersant/solubilizer. Use on crops such as corn, wheat, rice, fruit tree and cotton is disclosed.

The cited reference does not specifically state that the efficiency and efficacy of ethephon is increased by adding hydrochloric acid. However, because the same hydrochloric acid is combined with the same ethephon, and the combination is applied to the same crop plants such as fruit trees, cotton, corn and wheat, the same effect would necessarily have been obtained. The claims are thereby anticipated.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fritz et al. (US 3,879,188) in view of CABA abstract 80:49077, The Agrochemicals Handbook and The Farm Chemicals Handbook '98.

Fritz et al. disclose the various plant growth regulating properties of ethephon and other phosphonic compounds (see claims 1, 18, 52-62; see also the structural formulas in columns 1-2). Wide variety of plant growth regulating response is obtained with ethephon, including increase in yield (column 4, lines 37-44; Example 32 on columns 27-28), abscission/defoliation of cotton (column 5, line 43; Example 34 on column 28), inhibition of terminal growth (paragraph bridging columns 4-5). See columns 4-77 for all the various plant growth regulating activities and examples. Addition of an acid for stability is taught, "to ensure that the pH is not greater than five" (sentence bridging columns 9-10). Selection of acid can be "any material which will impart the desired pH value" (column 10, lines 3-4). 0.1 to 16 pounds per acre application rate is disclosed (column 9, lines 60-66).

CABA abstract 80:49077 discloses foliar spray of ethephon for boll opening and increasing the yield of cotton.

The Agrochemicals Handbook discloses ethephon as a compound that releases ethylene and interferes in the growth processes of plants (see "Mode of action"). Uses include regulation of phases of plant growth and development by application to various growth sites, wherein plants include coffee, cucumbers, tomatoes, citrus, peaches, etc. (see "Uses"). Ethephon is disclosed as stable in aqueous solutions having pH values less than 3.5; otherwise, decomposition occurs with the separation of ethylene (see "Stability"). Pages A179-A180/Oct 83.

The Farm Chemicals Handbook '98 discloses ethephon to be a widely used plant growth regulator (ethylene generator). Uses on crops such as cotton, apples, and many others are disclosed. Stability under pH 3 is taught. See page 164.

The difference between the claimed invention and Fritz et al. is that Fritz et al. do not expressly disclose the combination of ethephon or other phosphonic plant growth regulating compounds and an acid such as hydrochloric acid or phosphoric acid. However, it is well known enough to be disclosed in industry handbooks that ethephon decomposes at a pH of about 3.5 and Fritz et al. disclose the desirability of keeping the pH of ethephon and other phosphonic plant growth regulating compounds below pH 5. The ordinary skilled artisan would thus have been motivated to formulate ethephon with an acid in order to keep the pH at the highly acidic range of below 3.5. Selection of a specific acid such as hydrochloric acid, phosphoric acid or any of the other acids recited

in claims 1 and 2 would have been obvious because these are common acidifying agents (see also Fritz et al., column 10, lines 3-4).

Instant claims 3-8 recite increasing the efficiency of a phosphonic compound in various plant growth regulating effect. All those plant growth regulating effect are known for ethephon and its structurally related phosphonic compounds from the teachings of Fritz et al. Because the addition of an acid such as those recited by the claims would have been expected to provide stability and result in less decomposition, the mixture of ethephon or other phosphonic plant growth regulating compounds with said acid would have been expected to deliver increased efficiencies, as claimed.

As for the 2% volume to volume of the acid applied with phosphonic compounds (instant claim 9), the Examiner again maintains that such feature does not actually fix the amount of the acid since the volume depends on the concentration strength. Acids come in various strength or concentration forms, so just describing the volume amount does not specify the actual acidic content. Notwithstanding the above comments, a 2% volume content of some concentration strength of the recited acids would have been obvious. The exact amount of the acid would have been readily adjusted by the ordinary skilled artisan, who would have been motivated to utilize a quantity of acid sufficient to maintain the pH of the composition at or below 3.5.

Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because

every element of the invention and the claimed invention as a whole have been fairly disclosed or suggested by the teachings of the cited references.

In this regard, applicant's specification data on page 6 has been given consideration. The data has been deemed insufficient.

First, the data is only with respect to ethephon. Claims 2-9 read on "phosphonic compounds." Applicant has not established through objective evidence that data with ethephon is indicative or predictive of similar data with other phosphonic compounds, some of which possess substantial structural divergence (see Fritz et al., columns 1-2). Evidence of nonobviousness, if any, must be commensurate in scope with that of the claimed subject matter. In re Kulling, 14 USPQ2d 1056, 1058 (Fed. Cir. 1990); In re Lindner, 173 USPQ 356, 358 (CCPA 1972).

Second, the data is only with respect to cotton defoliation. The claims are far broader: they read on the entire spectrum of plant growth regulating activity. Nothing about applicant's data establishes that the cotton defoliation result would be indicative or predictive of similar results for different plant growth regulating activity in different plants. Kulling, 14 USPQ2d at 1058; Lindner, 173 USPQ at 358.

Third, and perhaps most important, it would have been expected that a 4% muriatic acid-containing ethephon composition would be more stable than a composition that did not contain the muriatic acid since ethephon decomposes at pH above 3.5. Less decomposed ethephon would contain more active ingredient to provide

the activity for which ethephon is known; and therefore, applicant's data cannot be given probative weight. The data does not rebut the expectation that an acid-added ethephon would be more stable, less decomposed, and thus more active.

Applicant's specification evidence is thereby deemed insufficient.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fritz et al. in view of CABA abstract 80:49077, The Agrochemicals Handbook and HCAPLUS abstract 2000:843249.

All references except for the HCAPLUS abstract were discussed above in the preceding ground of rejection, and the discussion there is incorporated herein by reference.

HCAPLUS abstract 2000:843249 discloses a plant growth stimulating insecticide composition that contains 1-50% ethephon, 0.5-10% imidacloprid, 10-40% sulfuric or hydrochloric acid, and dispersant/solubilizer. Use on crops such as corn, wheat, rice, fruit tree and cotton is disclosed.

The difference between the claimed invention and Fritz et al. is that Fritz et al. do not expressly disclose the combination of ethephon (or other phosphonic plant growth regulating compounds) and hydrochloric acid. However, it is well known enough to be disclosed by an industry handbook, The Agrochemicals Handbook, that ethephon decomposes at a pH of about 3.5 and Fritz et al. disclose the desirability of keeping the

pH of ethephon and other phosphonic plant growth regulating compounds below pH 5. The ordinary skilled artisan would thus have been motivated to formulate ethephon (or other phosphonic plant growth regulating compounds) with an acid in order to keep the pH at the highly acidic range of below 3.5. Selection of a specific acid such as hydrochloric acid would have been obvious because hydrochloric acid is a common acidifying agent, which has been shown to be suitable in combination with ethephon (HCAPLUS abstract 2000:843249).

Instant claims 3-8 recite increasing the efficiency of a phosphonic compound in various plant growth regulating effect. All those plant growth regulating effect are known for ethephon and its structurally related phosphonic compounds from the teachings of Fritz et al. Because the addition of hydrochloric acid would have been expected to provide stability and result in less decomposition, the mixture of ethephon or other phosphonic plant growth regulating compounds with said acid would have been expected to deliver increased efficiencies, as claimed.

As for the 2% volume to volume of the acid applied with phosphonic compounds (instant claim 9), the Examiner again maintains that such feature does not actually fix the amount of the acid since the volume depends on the concentration strength. Acids come in various strength or concentration forms, so just describing the volume amount does not specify the actual acidic content. Notwithstanding the above comments, a 2% volume content of some concentration strength of hydrochloric acid would have been

obvious. The exact amount of the acid would have been readily adjusted by the ordinary skilled artisan, who would have been motivated to utilize a quantity of hydrochloric acid sufficient to maintain the pH of the composition at or below 3.5.

Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly disclosed or suggested by the teachings of the cited references.

The statements set forth above in the preceding ground of rejection concerning applicant's specification data is incorporated herein by reference. Applicant's data is deemed to be insufficient for the reasons stated above.

It is noted that hydrochloric acid and muriatic acid are different terms for the same substance.

US 2007/0037707 is cited to further show the state of the art.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to JOHN PAK whose telephone number is **(571)272-0620.** The Examiner can normally be reached on Monday to Friday from 8 AM to 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's SPE, Johann Richter, can be reached on **(571)272-0646**.

The fax phone number for the organization where this application or proceeding is assigned is **(571)273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John Pak
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